Reply to Office action of: March 23, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-2 (canceled)

- Claim 3 (new): In a method for determining the most efficient synthesis of a representative set of compounds from a large chemical library, which large chemical library has been partitioned into regions of similarity or clusters, each cluster being represented by a skeletal structure having a core, locations for substitutions on the core (specific substituent group location) and a set of substituents for each specific substituent group location, the improvement which comprises;
 - (a) determining the most frequent substituent within a specific substituent group location across the clusters;
 - (b) eliminating all the clusters and their contents for that substituent determined in step a);
 - (c) repeating steps a) and b) for all substituents to produce a first ordered list;
 - (d) repeating steps a), b) and c) for each specific substituent group location to generate second, third, and the other ordered lists;
 - (e) determining the cross-products of each of the lists;
 - (f) eliminating all the clusters covered by such cross-products;
 - (g) repeating steps a) through f) until all clusters have been eliminated; and
 - (h) reviewing the results obtained from step (g) to generate a ranking or order for synthesis.